

Sheet 1 of 4

Form PTO-1449	U.S. Department of Commerce Patent and Trademark Office	Atty. Docket No. 03-214-A	Serial No. 10/789,831
INFORMATION DISCLOSURE STATEMENT BY APPLICANT		Applicant: Bao, et al.	
		Filing Date: February 27, 2004	Group: TBA

U.S. PATENT DOCUMENTS

Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date
	1.	4,193,983	3/18/80	Ullman et al.	436	528	
	2.	4,256,834	3/17/81	Zuk et al.	435	7.72	
	3.	4,261,968	4/14/81	Ullman et al.	436	546	
	4.	4,313,734	2/2/82	Leuvering	436	525	
	5.	4,318,707	3/9/82	Litman et al.	436	537	
	6.	4,650,770	3/17/87	Liu et al.	436	523	
	7.	4,713,348	12/15/87	Ullman	435	7.25	
	8.	4,853,335	8/1/89	Olsen et al.	436	523	
	9.	4,868,104	9/19/89	Kura et al.	435	6	
	10.	5,225,064	7/6/93	Henkens et al.	204	403.1	
	11.	5,294,369	3/15/94	Shigekawa et al.	516	97	
	12.	5,384,073	1/24/95	Shigekawa et al.	516	77	
	13.	5,384,363	1/24/95	Kidwell et al.			
	14.	5,460,831	10/24/95	Kossovsky et al.	424	493	
	15.	5,472,881	12/5/95	Beebe et al.			
	16.	5,514,602	05/07/96	Brooks, Jr. et al.	436	525	
	17.	5,521,289	5/28/96	Hainsfeld et al.	530	391.5	
	18.	5,543,158	8/6/96	Gref et al.	424	501	
	19.	5,571,726	11/05/96	Brooks, Jr. et al.	436	525	
	20.	5,665,582	9/9/97	Kaushch et al.	435	181	
	21.	5,681,943	10/28/97	Letsinger et al.	536	525.33	

OTHER DOCUMENTS - Including Author, Title, Date, Pertinent Pages, Etc.

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FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation Yes No
✓	✓	22. WO 89/06601	7/27/89	PCT	—	—	
✓	✓	23. WO 97/40181	10/30/97	PCT	—	—	
✓	✓	24. WO 98/04740	2/5/98	PCT	—	—	
✓	✓	25. WO 99/23256	10/30/98	PCT	—	—	
✓	✓	26. 0 630 974 A2	06/21/94	EPØ	—	—	
✓	✓	27. 0 667 398 A2	8/16/95	EPØ	—	—	

OTHER DOCUMENTS - Including Author, Title, Date, Pertinent Pages, Etc.

✓	28.	Alivisatos et al., "Organization of 'nanocrystal molecules' using DNA," <i>Nature</i> , Vol. 382, pp. 609-611 (1996)
✓	29.	Bain, et al., "Modeling Organic Surfaces with Self-Assembled Monolayers," <i>Angew. Chem. Int. Ed. Engl.</i> , Vol. 28, pp. 506-512 (1989)
✓	30.	Bradley, "The Chemistry of Transition Metal Colloids," <i>Clusters and Colloids: From Theory to Applications</i> , G. Schmid, Editor, BCh, Weinheim, New York, pp. 439-542 (1994)
✓	31.	Brust et al., "Novel Gold-Dihiol Nano-Networks with Non-Metallic Electronic Properties," <i>Adv. Mater.</i> , Vol. 7, pp. 795-797 (1995)
✓	32.	Chen et al., "A Specific Quadrilateral Synthesized from DNA Branched Junctions," <i>J. Am. Chem. Soc.</i> , Vol. 111, pp. 6402-6407 (1989)
✓	33.	Chen & Seeman, "Synthesis from DNA of a molecule with the connectivity of a cube," <i>Nature</i> , Vol. 350, pp. 631-633 (1991)
✓	34.	Chen et al., "Crystal Structure of a Four-Stranded Intercalated DNA: d(C ₄) ¹² <i>Biochem.</i> , Vol. 33, pp. 13540-13546 (1994)
✓	35.	Dagani, "Supramolecular Assemblies DNA to organize gold nanoparticles," <i>Chemical & Engineering News</i> , p. 6-7, August 19, 1996

Examiner	Date Considered
<i>✓</i>	<i>11/15/06</i>

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U.S. PATENT DOCUMENTS

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OTHER DOCUMENTS - Including Author, Title, Date, Pertinent Pages, Etc.

✓	36.	Dubois & Nuzzo, "Synthesis, Structure, and Properties of Model Organic Surfaces," <i>Annu. Rev. Phys. Chem.</i> , Vol. 43, pp. 437-464 (1992)
✓	37.	Elghanian et al., "Selective Colorimetric Detection of Polynucleotides Based on the Distance-Dependent Optical Properties of Gold Nanoparticles," <i>Science</i> , Vol. 277, pp. 1078-1081 (1997)
✓	38.	Grabar et al., "Preparation and Characterization of Au Colloid Monolayers," <i>Anal. Chem.</i> Vol. 67, pp. 735-743 (1995)
✓	39.	Hacia et al., "Detection of heterozygous mutations in BRCA1 using high density oligonucleotide arrays and two-colour fluorescence analysis," <i>Nature Genet.</i> , Vol. 14, pp. 441-447 (1996)
✓	40.	Jacoby, "Nanoparticles change color on binding to nucleotide target," <i>Chemical & Engineering News</i> , p. 10, August 25, 1997 "Simple, cheap method for DNA detection"
✓	41.	Letsinger et al., "Use of Hydrophobic Substituents in Controlling Self-Assembly of Oligonucleotides, <i>J. Am. Chem. Soc.</i> , Vol. 115, pp. 7535-7536 (1993)
✓	42.	Letsinger et al., "Control of Excimer Emission and Photochemistry of Stilbene Units by Oligonucleotide Hybridization," <i>J. Am. Chem. Soc.</i> , Vol. 116, pp. 811-812 (1994)
✓	43.	Marsh et al., "A new DNA nanostructure, the G-wire, imaged by scanning probe microscopy," <i>Nucleic Acids Res.</i> , Vol. 23, pp. 696-700 (1995)
✓	44.	Mirkin, "H-DNA and Related Structures," <i>Annu. Review Biophys. Biomol. Struct.</i> , Vol. 23, pp. 541-576 (1994)
✓	45.	Mirkin et al., "A DNA-based method for rationally assembling nanoparticles into macroscopic materials," <i>Nature</i> , Vol. 382, pp. 607-609 (1996)
✓	46.	Mirkin et al., "DNA-Induced Assembly of Gold Nanoparticles: A Method for Rationally Organizing Colloidal Particles into Ordered Macroscopic Materials," <i>Abstract 249, Abstracts of Papers Part 1, 212 ACS National Meeting 0-8412-3402-7</i> , American Chemical Society, Orlando, FL, August 25-29, 1996
✓	47.	Mucic et al., "Synthesis and characterization of DNA with ferrocenyl groups attached to their 5'-termini: electrochemical characterization of a redox-active nucleotide monolayer," <i>Chem. Commun.</i> , pp. 555-557 (1996)
✓	48.	Mulvaney, "Surface Plasmon Spectroscopy of Nanosized Metal Particles," <i>Langmuir</i> , Vol. 12, pp. 788-800 (1996)
✓	49.	Rabke-Clemmer et al., "Analysis of Functionalized DNA Adsorption on Au(111) Using Electron Spectroscopy," <i>Langmuir</i> , Vol. 10, pp. 1796-1800 (1994)

Examiner	Date Considered
<i>[Signature]</i>	11/15/04

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Sheet 4 of 4

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FOREIGN PATENT DOCUMENTS

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OTHER DOCUMENTS - Including Author, Title, Date, Pertinent Pages, Etc.

✓	50.	Roubi, "MOLECULAR MACHINES - Nanodevice with rotating arms assembled from synthetic DNA," <i>Chemical & Engineering News</i> , p. 13, (Jan. 1999)
✓	51.	Seeman et al., "Synthetic DNA knots and catenanes," <i>New J. Chem.</i> , Vol. 17, pp. 739-755 (1993)
✓	52.	Shaw & Wang, "Knitting of a DNA Chain During Ring Closure," <i>Science</i> , Vol. 260, pp. 533-536 (1993)
✓	53.	Shekhtman et al., "Stereostructure of replicative DNA catenanes from eukaryotic cells," <i>New J. Chem.</i> Vol. 17, pp. 757-763 (1993)
✓	54.	Smith and Feigon, "Quadruplex structure of Oxytricha telomeric DNA oligonucleotides," <i>Nature</i> , Vol. 356, pp. 164-168 (1992)
✓	55.	Thein et al., "The use of synthetic oligonucleotides as specific hybridization probes in the diagnosis of genetic disorders," 2 nd Ed., K.E. Davies, Ed., Oxford University Press, Oxford, New York, Tokyo, p. 21-33 (1993)
✓	56.	Wang et al., "Assembly and Characterization of Five-Arm and Six-Arm DNA Brached Junctions," <i>Biochem.</i> , Vol. 30, pp. 5667-5674 (1991)
✓	57.	Wang et al., "A DNA Aptamer Which Binds to and Inhibits Thrombin Exhibits a New Structural Motif for DNA," <i>Biochem.</i> , Vol. 32, pp. 1899-1904 (1993)
✓	58.	Weisbecker et al., "Molecular Self-Assembly of Aliphatic Thiols on Gold Colloids," <i>Langmuir</i> , Vol. 12, pp. 3763-3772 (1996)
✓	59.	Wells, "Unusual DNA Structures," <i>J. Biol. Chem.</i> , Vol. 263, pp. 1095-1098 (1988)
✓	60.	Zhang et al., "Informational Liposomes: Complexes Derived from Cholesteryl-conjugated Oligonucleotides and Liposomes," <i>Tetrahedron Lett.</i> , Vol. 37, pp. 6243-6246 (1996)

Examiner	Date Considered
	11/16/06

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Sheet 1 of 3

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1.	5,830,986	11/03/98	Merrill, et al.	528	332	10/28/96
2.	5,800,481	05/04/99	Lough, et al.	536	55.3	11/06/95
3.	6,203,989	03/20/01	Goldberg, et al.	435	6	03/25/99
4.	6,251,303	06/26/01	Bawendi, et al.	252	301.4R	09/18/98
5.	6,277,489	08/21/01	Abbott, et al.	428	403	12/04/98
6.	6,306,610	10/23/01	Bawendi, et al.	435	7.1	09/17/99
7.	6,361,944	03/26/02	Mirkin, et al.	435	6	06/25/99
8.	6,365,418	04/02/02	Wagner, et al.	436	518	05/18/00
9.	6,417,340	07/09/02	Mirkin, et al.	536	23.1	10/20/00

FOREIGN PATENT DOCUMENTS

	Document Number	Date	Country	Class	Subclass	Translation Yes	No
10.	WO 93/25709	23 December 1993	PCT				
11.	WO 98/04740	5 February 1998	PCT				
12.	WO 98/17317	30 April 1998	PCT				
13.	WO 99/50169	25 November 1999	PCT				
14.	WO 00/33079	8 June 2002	PCT				
15.	WO 01/00876	4 January 2001	PCT				

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PAGE 34/37 * RCVD AT 5/24/2006 4:38:29 PM [Eastern Daylight Time] * SVR:USPTO-EFXRF-3/7 * DNIS:2738300 * CSID:312 913 0002 * DURATION (mm:ss):10:48

Sheet 2 of 3

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—	16.	WO 01/51665	19 July 2001	PCT				
←	17.	WO 01/73123	4 October 2001	PCT				
—	18.	WO 01/86301	15 November 2001	PCT				
—	19.	WO 02/04681	17 January 2002	PCT				
—	20.	WO 02/18643	7 March 2002	PCT				
—	21.	WO 02/36169	10 May 2002	PCT				
—	22.	WO 02/46483	13 June 2002	PCT				
—	23.	WO 02/46472	13 June 2002	PCT				

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

—	24.	Letsinger, R., et al., "Chemistry of Oligonucleotide-Gold Nanoparticle Conjugates," <i>Phosphorus, Sulfur and Silicon</i> , Volume 144, p. 359-362 (1999) —
←	25.	Letsinger, R., et al., "Use of a Steroid-Cyclic Disulfide Anchor in Constructing Gold-Nanoparticle-Oligonucleotide Conjugates," <i>Bioconjugate Chem.</i> , p. 289-291 (2000) —

U.S. PATENT DOCUMENTS

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26.	Li Z., et al., "Multiple thiol-anchor capped DNA-gold nanoparticle conjugates," Nucleic Acids Research, Volume 30, p. 1558-1562 (2002)
27.	Nuzzo R., et al., "Spontaneously Organized Molecular Assemblies. 3. Preparation and Properties of Solution Adsorbed Monolayers of Organic Disulfides on Gold Surfaces," J. Am. Chem. Soc., Volume 109, p. 2358-2368 (1987)
28.	Otsuka, H., et al., "Quantitative and Reversible Lectin-Induced Association of Gold Nanoparticles Modified with D-Lactosyl-D-mercaptopoly(ethylene glycol)," J. Am. Chem. Soc., Volume 123, p. 8226-8230 (2001)
29.	Wuelfing, P., et al., "Nanometer Gold Clusters Protected by Surface-Bound Monolayers of Thiolated Poly(ethylene glycol) Polymer Electrolyte," J. Am. Chem. Soc., Volume 120, p. 12696-12697 (1998)

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